

15-40581

## Chesapeake Operating Inc.

Eddy County, New Mexico (NAD 1983)

PLU Big Sinks 3-25-30 USA 1H

Job # 1210896

Rig: Latshaw 14

Survey: Phoenix MWD Surveys

## Chesapeake Energy, Survey Report

17 October, 2012





# Chesapeake Energy, Survey Report

Chesapeake

|           |                                    |                              |                                 |
|-----------|------------------------------------|------------------------------|---------------------------------|
| Company:  | Chesapeake Operating Inc.          | Local Co-ordinate Reference: | Well Job # 1210896              |
| Project:  | Eddy County, New Mexico (NAD 1983) | TVD Reference:               | WELL @ 3340.00usft (Latshaw 14) |
| Site:     | PLU Big Sinks 3-25-30 USA 1H       | MD Reference:                | WELL @ 3340.00usft (Latshaw 14) |
| Well:     | Job # 1210896                      | North Reference:             | Grid                            |
| Wellbore: | Rig: Latshaw 14                    | Survey Calculation Method:   | Minimum Curvature               |
| Design:   | Rig: Latshaw 14                    | Database:                    | Compass5000                     |

|             |  |                           |  |                                    |  |                |  |
|-------------|--|---------------------------|--|------------------------------------|--|----------------|--|
| Project     |  |                           |  | Eddy County, New Mexico (NAD 1983) |  |                |  |
| Map System: |  | US State Plane 1983       |  | System Datum:                      |  | Mean Sea Level |  |
| Geo Datum:  |  | North American Datum 1983 |  |                                    |  |                |  |
| Map Zone:   |  | New Mexico Eastern Zone   |  |                                    |  |                |  |

|                       |  |     |           |          |  |                              |            |  |              |      |  |           |            |  |                  |                   |  |                   |  |  |        |  |  |
|-----------------------|--|-----|-----------|----------|--|------------------------------|------------|--|--------------|------|--|-----------|------------|--|------------------|-------------------|--|-------------------|--|--|--------|--|--|
| Site                  |  |     |           |          |  | PLU Big Sinks 3-25-30 USA 1H |            |  |              |      |  |           |            |  |                  |                   |  |                   |  |  |        |  |  |
| Site Position:        |  |     | Northing: |          |  | 419,698.00                   |            |  | usft         |      |  | Latitude: |            |  | 32° 9' 10.6902 N |                   |  |                   |  |  |        |  |  |
| From:                 |  | Map |           | Easting: |  |                              | 685,614.86 |  |              | usft |  |           | Longitude: |  |                  | 103° 52' 1.6722 W |  |                   |  |  |        |  |  |
| Position Uncertainty: |  |     | 0.00      |          |  | usft                         |            |  | Slot Radius: |      |  | 13-3/16   |            |  | "                |                   |  | Grid Convergence: |  |  | 0.25 ° |  |  |

|                      |           |                     |            |                 |               |                   |
|----------------------|-----------|---------------------|------------|-----------------|---------------|-------------------|
| Well                 |           | Job # 1210896       |            |                 |               |                   |
| Well Position        | +N-S      | 0.00 usft           | Northing:  | 419,698.00 usft | Latitude:     | 32° 9' 10.6902 N  |
|                      | +E-W      | 0.00 usft           | Easting:   | 685,614.86 usft | Longitude:    | 103° 52' 1.6722 W |
| Position Uncertainty | 0.00 usft | Wellhead Elevation: | 23.00 usft | Ground Level:   | 3,317.00 usft |                   |

|           |             |                 |             |           |                |
|-----------|-------------|-----------------|-------------|-----------|----------------|
| Wellbore  |             | Rig: Latshaw 14 |             |           |                |
| Magnetics | Model Name  | Sample Date     | Declination | Dip Angle | Field Strength |
|           |             |                 | (°)         | (°)       | (nT)           |
|           | IGRF2010_14 | 09/14/12        | 7.56        | 60.04     | 48,417         |

|                   |                  |                 |        |               |      |
|-------------------|------------------|-----------------|--------|---------------|------|
| Design            |                  | Rig: Latshaw.14 |        |               |      |
| Audit Notes:      |                  |                 |        |               |      |
| Version:          | 1.0              | Phase:          | ACTUAL | Tie On Depth: | 0.00 |
| Vertical Section: | Depth From (TVD) | +N/-S           | +E/-W  | Direction     |      |
|                   | (usft)           | (usft)          | (usft) | (°)           |      |
|                   | 0.00             | 0.00            | 0.00   | 0.22          |      |

|                |              |                                       |           |                |
|----------------|--------------|---------------------------------------|-----------|----------------|
| Survey Program |              | Date 10/17/12                         |           |                |
| From<br>(usft) | To<br>(usft) | Survey (Wellbore)                     | Tool Name | Description    |
| 203.00         | 13,934.00    | Phoenix MWD Surveys (Rig: Latshaw 14) | MWD       | MWD - Standard |



## Chesapeake Energy, Survey Report

Geoside

|           |                                    |                              |                                 |
|-----------|------------------------------------|------------------------------|---------------------------------|
| Company:  | Chesapeake Operating Inc.          | Local Co-ordinate Reference: | Well Job # 1210896              |
| Project:  | Eddy County, New Mexico (NAD 1983) | TVD Reference:               | WELL @ 3340.00usft (Latshaw 14) |
| Site:     | PLU Big Sinks 3-25-30 USA 1H       | MD Reference:                | WELL @ 3340.00usft (Latshaw 14) |
| Well:     | Job # 1210896                      | North Reference:             | Grid                            |
| Wellbore: | Rig: Latshaw 14                    | Survey Calculation Method:   | Minimum Curvature               |
| Design:   | Rig: Latshaw 14                    | Database:                    | Compass5000                     |

| Survey                              |            |                      |                 |               |               |               |                  |                     |                    |                   |  |
|-------------------------------------|------------|----------------------|-----------------|---------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|--|
| MD<br>(usft)                        | Inc<br>(°) | Azi (azimuth)<br>(°) | TVDSS<br>(usft) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |  |
| 0.00                                | 0.00       | 0.00                 | 3,340.00        | 0.00          | 0.00          | 0.00          | 0.00             | 0.00                | 419,698.00         | 685,614.86        |  |
| 203.00                              | 0.40       | 242.70               | 3,137.00        | 203.00        | -0.32         | -0.63         | -0.33            | 0.20                | 419,697.68         | 685,614.23        |  |
| First Phoenix MWD Surveys @ 203' MD |            |                      |                 |               |               |               |                  |                     |                    |                   |  |
| 390.00                              | 0.40       | 224.70               | 2,950.01        | 389.99        | -1.09         | -1.67         | -1.09            | 0.07                | 419,696.91         | 685,613.19        |  |
| 544.00                              | 0.40       | 284.10               | 2,796.01        | 543.99        | -1.34         | -2.57         | -1.35            | 0.26                | 419,696.66         | 685,612.29        |  |
| 734.00                              | 0.80       | 3.70                 | 2,606.02        | 733.98        | 0.15          | -3.13         | 0.13             | 0.44                | 419,698.15         | 685,611.73        |  |
| 925.00                              | 1.20       | 15.00                | 2,415.05        | 924.95        | 3.41          | -2.52         | 3.40             | 0.23                | 419,701.41         | 685,612.33        |  |
| 1,015.00                            | 1.30       | 357.40               | 2,325.07        | 1,014.93      | 5.34          | -2.32         | 5.33             | 0.44                | 419,703.34         | 685,612.53        |  |
| 1,241.00                            | 1.50       | 326.00               | 2,099.13        | 1,240.87      | 10.35         | -4.10         | 10.34            | 0.35                | 419,708.35         | 685,610.76        |  |
| 1,431.00                            | 1.10       | 318.60               | 1,909.18        | 1,430.82      | 13.78         | -6.69         | 13.76            | 0.23                | 419,711.78         | 685,608.17        |  |
| 1,621.00                            | 1.20       | 305.70               | 1,719.22        | 1,620.78      | 16.31         | -9.51         | 16.27            | 0.15                | 419,714.31         | 685,605.34        |  |
| 1,812.00                            | 1.40       | 311.80               | 1,528.27        | 1,811.73      | 19.03         | -12.88        | 18.98            | 0.13                | 419,717.03         | 685,601.98        |  |
| 2,002.00                            | 1.20       | 315.70               | 1,338.32        | 2,001.68      | 22.00         | -16.00        | 21.94            | 0.12                | 419,720.00         | 685,598.86        |  |
| 2,192.00                            | 1.20       | 297.10               | 1,148.36        | 2,191.64      | 24.33         | -19.16        | 24.26            | 0.20                | 419,722.33         | 685,595.70        |  |
| 2,382.00                            | 1.50       | 266.70               | 958.41          | 2,381.59      | 25.10         | -23.41        | 25.01            | 0.40                | 419,723.10         | 685,591.45        |  |
| 2,573.00                            | 1.70       | 255.30               | 767.48          | 2,572.52      | 24.23         | -28.65        | 24.12            | 0.20                | 419,722.23         | 685,586.21        |  |
| 2,762.00                            | 1.20       | 250.80               | 578.54          | 2,761.46      | 22.87         | -33.23        | 22.74            | 0.27                | 419,720.87         | 685,581.63        |  |
| 2,951.00                            | 1.20       | 259.80               | 389.59          | 2,950.41      | 21.87         | -37.05        | 21.73            | 0.10                | 419,719.87         | 685,577.81        |  |
| 3,139.00                            | 1.00       | 255.70               | 201.62          | 3,138.38      | 21.12         | -40.57        | 20.96            | 0.11                | 419,719.12         | 685,574.28        |  |
| 3,328.00                            | 0.80       | 174.30               | 12.64           | 3,327.36      | 19.40         | -42.04        | 19.24            | 0.63                | 419,717.40         | 685,572.82        |  |
| 3,517.00                            | 1.20       | 155.90               | -176.33         | 3,516.33      | 16.28         | -41.10        | 16.12            | 0.27                | 419,714.28         | 685,573.76        |  |
| 3,706.00                            | 1.80       | 154.00               | -365.27         | 3,705.27      | 11.80         | -38.99        | 11.65            | 0.32                | 419,709.80         | 685,575.87        |  |
| 3,919.00                            | 1.20       | 158.30               | -578.19         | 3,918.19      | 6.72          | -36.70        | 6.58             | 0.29                | 419,704.72         | 685,578.16        |  |
| 4,109.00                            | 1.20       | 151.80               | -768.15         | 4,108.15      | 3.12          | -35.02        | 2.99             | 0.07                | 419,701.12         | 685,579.83        |  |
| 4,299.00                            | 1.10       | 149.70               | -958.11         | 4,298.11      | -0.21         | -33.16        | -0.33            | 0.06                | 419,697.79         | 685,581.69        |  |
| 4,489.00                            | 1.00       | 148.50               | -1,148.08       | 4,488.08      | -3.19         | -31.38        | -3.32            | 0.05                | 419,694.81         | 685,583.48        |  |
| 4,680.00                            | 1.10       | 139.90               | -1,339.05       | 4,679.05      | -6.02         | -29.33        | -6.13            | 0.10                | 419,691.98         | 685,585.53        |  |



# Chesapeake Energy, Survey Report



|           |                                     |                              |                                  |
|-----------|-------------------------------------|------------------------------|----------------------------------|
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| Project:  | Eddy County, New Mexico (NAD, 1983) | TVD Reference:               | WELL @ 3340.00usft (Latshaw, 14) |
| Site:     | PLU Big Sinks 3-25-30 USA 1H        | MD Reference:                | WELL @ 3340.00usft (Latshaw, 14) |
| Well:     | Job # 1210896                       | North Reference:             | Grid                             |
| Wellbore: | Rig: Latshaw, 14                    | Survey Calculation Method:   | Minimum Curvature                |
| Design:   | Rig: Latshaw, 14                    | Database:                    | Compass5000                      |

| Survey       |            |                      |                 |               |               |               |                  |                     |                    |                   |
|--------------|------------|----------------------|-----------------|---------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|
| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVDSS<br>(usft) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |
| 4,870.00     | 0.70       | 152.60               | -1,529.03       | 4,869.03      | -8.44         | -27.62        | -8.55            | 0.23                | 419,689.56         | 685,587.24        |
| 5,060.00     | 0.50       | 148.40               | -1,719.02       | 5,059.02      | -10.18        | -26.65        | -10.28           | 0.11                | 419,687.82         | 685,588.21        |
| 5,250.00     | 0.40       | 151.20               | -1,909.01       | 5,249.01      | -11.47        | -25.89        | -11.57           | 0.05                | 419,686.53         | 685,588.96        |
| 5,441.00     | 0.50       | 156.80               | -2,100.01       | 5,440.01      | -12.82        | -25.24        | -12.91           | 0.06                | 419,685.18         | 685,589.61        |
| 5,631.00     | 0.60       | 182.10               | -2,290.00       | 5,630.00      | -14.57        | -24.95        | -14.67           | 0.14                | 419,683.43         | 685,589.90        |
| 5,821.00     | 0.50       | 168.90               | -2,479.99       | 5,819.99      | -16.38        | -24.83        | -16.48           | 0.08                | 419,681.62         | 685,590.03        |
| 6,011.00     | 0.70       | 160.60               | -2,669.98       | 6,009.98      | -18.29        | -24.29        | -18.38           | 0.11                | 419,679.71         | 685,590.57        |
| 6,201.00     | 1.00       | 174.50               | -2,859.96       | 6,199.96      | -21.03        | -23.74        | -21.13           | 0.19                | 419,676.97         | 685,591.12        |
| 6,392.00     | 0.90       | 189.30               | -3,050.93       | 6,390.93      | -24.17        | -23.82        | -24.27           | 0.14                | 419,673.83         | 685,591.03        |
| 6,582.00     | 1.00       | 202.10               | -3,240.90       | 6,580.90      | -27.18        | -24.69        | -27.28           | 0.12                | 419,670.82         | 685,590.17        |
| 6,772.00     | 1.30       | 217.40               | -3,430.87       | 6,770.87      | -30.43        | -26.62        | -30.53           | 0.22                | 419,667.57         | 685,588.23        |
| 6,962.00     | 1.30       | 206.60               | -3,620.82       | 6,960.82      | -34.07        | -28.90        | -34.18           | 0.13                | 419,663.93         | 685,585.96        |
| 7,152.00     | 1.40       | 207.10               | -3,810.77       | 7,150.77      | -38.06        | -30.92        | -38.18           | 0.05                | 419,659.94         | 685,583.94        |
| 7,342.00     | 1.40       | 201.50               | -4,000.71       | 7,340.71      | -42.29        | -32.83        | -42.42           | 0.07                | 419,655.71         | 685,582.03        |
| 7,532.00     | 1.30       | 208.40               | -4,190.66       | 7,530.66      | -46.35        | -34.70        | -46.48           | 0.10                | 419,651.65         | 685,580.15        |
| 7,723.00     | 1.70       | 211.70               | -4,381.59       | 7,721.59      | -50.66        | -37.22        | -50.80           | 0.21                | 419,647.34         | 685,577.64        |
| 7,912.00     | 1.20       | 221.70               | -4,570.53       | 7,910.53      | -54.52        | -40.01        | -54.68           | 0.30                | 419,643.48         | 685,574.85        |
| 8,103.00     | 1.90       | 258.70               | -4,761.46       | 8,101.46      | -56.64        | -44.45        | -56.81           | 0.62                | 419,641.36         | 685,570.41        |
| 8,293.00     | 0.60       | 269.80               | -4,951.41       | 8,291.41      | -57.26        | -48.53        | -57.44           | 0.69                | 419,640.74         | 685,566.33        |
| 8,483.00     | 0.60       | 255.90               | -5,141.40       | 8,481.40      | -57.50        | -50.49        | -57.70           | 0.08                | 419,640.50         | 685,564.37        |
| 8,561.00     | 3.80       | 350.30               | -5,219.35       | 8,559.35      | -55.06        | -51.32        | -55.25           | 4.99                | 419,642.94         | 685,563.53        |
| 8,593.00     | 9.10       | 352.20               | -5,251.13       | 8,591.13      | -51.50        | -51.84        | -51.70           | 16.57               | 419,646.50         | 685,563.01        |
| 8,625.00     | 13.50      | 351.10               | -5,282.50       | 8,622.50      | -45.30        | -52.77        | -45.50           | 13.77               | 419,652.70         | 685,562.09        |
| 8,656.00     | 17.80      | 355.20               | -5,312.35       | 8,652.35      | -37.00        | -53.72        | -37.21           | 14.31               | 419,661.00         | 685,561.13        |
| 8,688.00     | 21.70      | 358.40               | -5,342.46       | 8,682.46      | -26.21        | -54.30        | -26.42           | 12.64               | 419,671.79         | 685,560.56        |
| 8,720.00     | 22.70      | 1.20                 | -5,372.09       | 8,712.09      | -14.12        | -54.33        | -14.33           | 4.55                | 419,683.88         | 685,560.52        |
| 8,751.00     | 24.10      | 359.70               | -5,400.54       | 8,740.54      | -1.81         | -54.24        | -2.02            | 4.91                | 419,696.19         | 685,560.62        |



# Chesapeake Energy, Survey Report



|           |                                     |                              |                                  |
|-----------|-------------------------------------|------------------------------|----------------------------------|
| Company:  | Chesapeake Operating Inc.           | Local Co-ordinate Reference: | Well Job # 1210896               |
| Project:  | Eddy County, New Mexico (NAD, 1983) | TVD Reference:               | WELL @ 3340.00usft (Latshaw, 14) |
| Site:     | PLU Big Sinks 3-25-30 USA 1H        | MD Reference:                | WELL @ 3340.00usft (Latshaw, 14) |
| Well:     | Job # 1210896                       | North Reference:             | Grid                             |
| Wellbore: | Rig: Latshaw, 14                    | Survey Calculation Method:   | Minimum Curvature                |
| Design:   | Rig: Latshaw, 14                    | Database:                    | Compass5000                      |

| Survey       |            |                      |                 |               |               |               |                  |                     |                    |                   |
|--------------|------------|----------------------|-----------------|---------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|
| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVDSS<br>(usft) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |
| 8,783.00     | 25.40      | 358.70               | -5,429.60       | 8,769.60      | 11.58         | -54.43        | 11.38            | 4.27                | 419,709.58         | 685,560.43        |
| 8,815.00     | 26.40      | 1.00                 | -5,458.39       | 8,798.39      | 25.56         | -54.46        | 25.35            | 4.43                | 419,723.56         | 685,560.39        |
| 8,847.00     | 29.00      | 2.30                 | -5,486.72       | 8,826.72      | 40.43         | -54.03        | 40.22            | 8.34                | 419,738.43         | 685,560.83        |
| 8,878.00     | 33.60      | 1.10                 | -5,513.20       | 8,853.20      | 56.52         | -53.56        | 56.31            | 14.97               | 419,754.52         | 685,561.30        |
| 8,910.00     | 37.50      | 359.00               | -5,539.23       | 8,879.23      | 75.12         | -53.56        | 74.91            | 12.77               | 419,773.12         | 685,561.30        |
| 8,942.00     | 41.70      | 358.70               | -5,563.88       | 8,903.88      | 95.51         | -53.97        | 95.30            | 13.14               | 419,793.51         | 685,560.88        |
| 8,973.00     | 45.40      | 359.00               | -5,586.34       | 8,926.34      | 116.86        | -54.40        | 116.65           | 11.95               | 419,814.86         | 685,560.46        |
| 9,005.00     | 49.10      | 0.30                 | -5,608.06       | 8,948.06      | 140.35        | -54.54        | 140.14           | 11.94               | 419,838.35         | 685,560.32        |
| 9,037.00     | 52.30      | 1.60                 | -5,628.33       | 8,968.33      | 165.11        | -54.12        | 164.90           | 10.48               | 419,863.11         | 685,560.74        |
| 9,068.00     | 56.20      | 1.40                 | -5,646.44       | 8,986.44      | 190.25        | -53.46        | 190.04           | 12.59               | 419,888.25         | 685,561.40        |
| 9,100.00     | 60.00      | 1.70                 | -5,663.34       | 9,003.34      | 217.40        | -52.72        | 217.20           | 11.90               | 419,915.40         | 685,562.13        |
| 9,132.00     | 63.30      | 1.10                 | -5,678.54       | 9,018.54      | 245.55        | -52.04        | 245.35           | 10.44               | 419,943.55         | 685,562.82        |
| 9,163.00     | 67.40      | 0.70                 | -5,691.46       | 9,031.46      | 273.72        | -51.60        | 273.52           | 13.28               | 419,971.72         | 685,563.26        |
| 9,195.00     | 71.10      | 1.10                 | -5,702.80       | 9,042.80      | 303.63        | -51.13        | 303.44           | 11.62               | 420,001.63         | 685,563.73        |
| 9,227.00     | 75.00      | 1.20                 | -5,712.13       | 9,052.13      | 334.23        | -50.51        | 334.04           | 12.19               | 420,032.23         | 685,564.34        |
| 9,259.00     | 78.40      | 0.50                 | -5,719.49       | 9,059.49      | 365.37        | -50.05        | 365.17           | 10.84               | 420,063.37         | 685,564.81        |
| 9,290.00     | 81.60      | 0.00                 | -5,724.87       | 9,064.87      | 395.89        | -49.92        | 395.70           | 10.44               | 420,093.89         | 685,564.94        |
| 9,322.00     | 84.50      | 359.70               | -5,728.74       | 9,068.74      | 427.65        | -50.00        | 427.46           | 9.11                | 420,125.65         | 685,564.85        |
| 9,354.00     | 86.90      | 359.70               | -5,731.14       | 9,071.14      | 459.56        | -50.17        | 459.36           | 7.50                | 420,157.56         | 685,564.69        |
| 9,385.00     | 90.00      | 358.70               | -5,731.98       | 9,071.98      | 490.54        | -50.60        | 490.34           | 10.51               | 420,188.54         | 685,564.25        |
| 9,417.00     | 90.60      | 358.60               | -5,731.81       | 9,071.81      | 522.53        | -51.36        | 522.33           | 1.90                | 420,220.53         | 685,563.50        |
| 9,449.00     | 91.90      | 358.80               | -5,731.11       | 9,071.11      | 554.51        | -52.08        | 554.31           | 4.11                | 420,252.51         | 685,562.77        |
| 9,544.00     | 92.80      | 358.70               | -5,727.22       | 9,067.22      | 649.41        | -54.15        | 649.20           | 0.95                | 420,347.41         | 685,560.70        |
| 9,639.00     | 92.30      | 358.30               | -5,722.99       | 9,062.99      | 744.28        | -56.64        | 744.06           | 0.67                | 420,442.28         | 685,558.22        |
| 9,734.00     | 92.40      | 359.00               | -5,719.10       | 9,059.10      | 839.18        | -58.87        | 838.94           | 0.74                | 420,537.18         | 685,555.98        |
| 9,829.00     | 94.20      | 0.50                 | -5,713.63       | 9,053.63      | 934.01        | -59.29        | 933.78           | 2.46                | 420,632.01         | 685,555.57        |
| 9,924.00     | 94.50      | 0.00                 | -5,706.42       | 9,046.42      | 1,028.74      | -58.88        | 1,028.50         | 0.61                | 420,726.74         | 685,555.98        |



# Chesapeake Energy, Survey Report



|           |                                     |                              |                                 |
|-----------|-------------------------------------|------------------------------|---------------------------------|
| Company:  | Chesapeake Operating Inc            | Local Co-ordinate Reference: | Well Job # 1210896              |
| Project:  | Eddy County, New Mexico (NAD, 1983) | TVD Reference:               | WELL @ 3340.00usft (Latshaw 14) |
| Site:     | PLU Big Sinks 3-25-30 USA 1H        | MD Reference:                | WELL @ 3340.00usft (Latshaw 14) |
| Well:     | Job # 1210896                       | North Reference:             | Grid                            |
| Wellbore: | Rig: Latshaw 14                     | Survey Calculation Method:   | Minimum Curvature               |
| Design:   | Rig: Latshaw 14                     | Database:                    | Compass5000                     |

| Survey       |            |                      |                 |               |               |               |                  |                     |                    |                   |  |
|--------------|------------|----------------------|-----------------|---------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|--|
| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVDSS<br>(usft) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |  |
| 10,019.00    | 93.10      | 0.70                 | -5,700.13       | 9,040.13      | 1,123.52      | -58.30        | 1,123.29         | 1.65                | 420,821.52         | 685,556.56        |  |
| 10,115.00    | 92.10      | 2.00                 | -5,695.77       | 9,035.77      | 1,219.39      | -56.04        | 1,219.17         | 1.71                | 420,917.39         | 685,558.82        |  |
| 10,210.00    | 91.30      | 1.00                 | -5,692.95       | 9,032.95      | 1,314.32      | -53.55        | 1,314.10         | 1.35                | 421,012.32         | 685,561.31        |  |
| 10,305.00    | 90.90      | 0.50                 | -5,691.13       | 9,031.13      | 1,409.29      | -52.31        | 1,409.08         | 0.67                | 421,107.29         | 685,562.55        |  |
| 10,400.00    | 91.60      | 1.50                 | -5,689.06       | 9,029.06      | 1,504.25      | -50.65        | 1,504.05         | 1.28                | 421,202.25         | 685,564.21        |  |
| 10,495.00    | 90.20      | 2.90                 | -5,687.56       | 9,027.56      | 1,599.17      | -47.00        | 1,598.97         | 2.08                | 421,297.17         | 685,567.85        |  |
| 10,591.00    | 89.10      | 3.90                 | -5,688.15       | 9,028.15      | 1,694.99      | -41.31        | 1,694.82         | 1.55                | 421,392.99         | 685,573.55        |  |
| 10,686.00    | 87.90      | 3.90                 | -5,690.64       | 9,030.64      | 1,789.74      | -34.85        | 1,789.59         | 1.26                | 421,487.74         | 685,580.01        |  |
| 10,781.00    | 88.20      | 3.10                 | -5,693.87       | 9,033.87      | 1,884.51      | -29.05        | 1,884.38         | 0.90                | 421,582.51         | 685,585.80        |  |
| 10,876.00    | 87.90      | 2.70                 | -5,697.10       | 9,037.10      | 1,979.33      | -24.25        | 1,979.22         | 0.53                | 421,677.33         | 685,590.61        |  |
| 10,971.00    | 89.00      | 0.70                 | -5,699.67       | 9,039.67      | 2,074.25      | -21.43        | 2,074.15         | 2.40                | 421,772.25         | 685,593.42        |  |
| 11,066.00    | 87.80      | 0.50                 | -5,702.32       | 9,042.32      | 2,169.20      | -20.44        | 2,169.11         | 1.28                | 421,867.20         | 685,594.42        |  |
| 11,161.00    | 89.40      | 0.50                 | -5,704.65       | 9,044.65      | 2,264.17      | -19.61        | 2,264.08         | 1.68                | 421,962.17         | 685,595.25        |  |
| 11,256.00    | 88.00      | 0.10                 | -5,706.80       | 9,046.80      | 2,359.14      | -19.11        | 2,359.05         | 1.53                | 422,057.14         | 685,595.74        |  |
| 11,351.00    | 89.50      | 359.60               | -5,708.87       | 9,048.87      | 2,454.11      | -19.36        | 2,454.02         | 1.66                | 422,152.11         | 685,595.49        |  |
| 11,447.00    | 91.30      | 359.90               | -5,708.20       | 9,048.20      | 2,550.11      | -19.78        | 2,550.01         | 1.90                | 422,248.11         | 685,595.08        |  |
| 11,542.00    | 91.60      | 359.20               | -5,705.80       | 9,045.80      | 2,645.07      | -20.53        | 2,644.97         | 0.80                | 422,343.07         | 685,594.33        |  |
| 11,637.00    | 90.30      | 358.70               | -5,704.22       | 9,044.22      | 2,740.04      | -22.27        | 2,739.93         | 1.47                | 422,438.04         | 685,592.59        |  |
| 11,732.00    | 91.40      | 359.10               | -5,702.81       | 9,042.81      | 2,835.01      | -24.09        | 2,834.90         | 1.23                | 422,533.01         | 685,590.77        |  |
| 11,826.00    | 91.10      | 358.70               | -5,700.76       | 9,040.76      | 2,928.97      | -25.90        | 2,928.85         | 0.53                | 422,626.97         | 685,588.96        |  |
| 11,922.00    | 90.80      | 0.40                 | -5,699.17       | 9,039.17      | 3,024.95      | -26.65        | 3,024.83         | 1.80                | 422,722.95         | 685,588.21        |  |
| 12,017.00    | 89.60      | 0.70                 | -5,698.84       | 9,038.84      | 3,119.94      | -25.74        | 3,119.82         | 1.30                | 422,817.94         | 685,589.12        |  |
| 12,112.00    | 88.40      | 0.50                 | -5,700.50       | 9,040.50      | 3,214.92      | -24.74        | 3,214.80         | 1.28                | 422,912.92         | 685,590.11        |  |
| 12,207.00    | 90.20      | 1.20                 | -5,701.66       | 9,041.66      | 3,309.90      | -23.33        | 3,309.79         | 2.03                | 423,007.90         | 685,591.52        |  |
| 12,302.00    | 88.70      | 0.40                 | -5,702.57       | 9,042.57      | 3,404.88      | -22.01        | 3,404.77         | 1.79                | 423,102.88         | 685,592.85        |  |
| 12,397.00    | 89.40      | 1.00                 | -5,704.15       | 9,044.15      | 3,499.86      | -20.85        | 3,499.76         | 0.97                | 423,197.86         | 685,594.01        |  |
| 12,492.00    | 90.20      | 1.20                 | -5,704.48       | 9,044.48      | 3,594.84      | -19.02        | 3,594.74         | 0.87                | 423,292.84         | 685,595.83        |  |





# Chesapeake Energy, Survey Report

Chesapeake

|           |                                   |                              |                                 |
|-----------|-----------------------------------|------------------------------|---------------------------------|
| Company:  | Chesapeake Operating Inc          | Local Co-ordinate Reference: | Well Job # 1210896              |
| Project:  | Eddy County New Mexico (NAD 1983) | TVD Reference:               | WELL @ 3340.00usft (Latshaw.14) |
| Site:     | PLU Big Sinks 3-25-30 USA 1H      | MD Reference:                | WELL @ 3340.00usft (Latshaw.14) |
| Well:     | Job # 1210896                     | North Reference:             | Grid                            |
| Wellbore: | Rig Latshaw.14                    | Survey Calculation Method:   | Minimum Curvature               |
| Design:   | Rig Latshaw.14                    | Database:                    | Compass5000                     |

| Survey                               |            |                      |                 |               |               |               |                  |                     |                    |                   |  |
|--------------------------------------|------------|----------------------|-----------------|---------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|--|
| MD<br>(usft)                         | Inc<br>(°) | Azi (azimuth)<br>(°) | TVDSS<br>(usft) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |  |
| 12,587.00                            | 89.50      | 0.70                 | -5,704.73       | 9,044.73      | 3,689.83      | -17.45        | 3,689.73         | 0.91                | 423,387.83         | 685,597.41        |  |
| 12,682.00                            | 89.30      | 359.90               | -5,705.72       | 9,045.72      | 3,784.82      | -16.95        | 3,784.73         | 0.87                | 423,482.82         | 685,597.91        |  |
| 12,777.00                            | 88.90      | 359.00               | -5,707.21       | 9,047.21      | 3,879.80      | -17.86        | 3,879.71         | 1.04                | 423,577.80         | 685,596.99        |  |
| 12,872.00                            | 89.80      | 358.60               | -5,708.29       | 9,048.29      | 3,974.78      | -19.85        | 3,974.67         | 1.04                | 423,672.78         | 685,595.00        |  |
| 12,967.00                            | 91.30      | 359.80               | -5,707.38       | 9,047.38      | 4,069.76      | -21.18        | 4,069.65         | 2.02                | 423,767.76         | 685,593.68        |  |
| 13,062.00                            | 92.10      | 1.40                 | -5,704.56       | 9,044.56      | 4,164.71      | -20.18        | 4,164.60         | 1.88                | 423,862.71         | 685,594.67        |  |
| 13,157.00                            | 92.00      | 0.80                 | -5,701.16       | 9,041.16      | 4,259.63      | -18.36        | 4,259.53         | 0.64                | 423,957.63         | 685,596.50        |  |
| 13,252.00                            | 91.80      | 0.80                 | -5,698.01       | 9,038.01      | 4,354.57      | -17.04        | 4,354.47         | 0.21                | 424,052.57         | 685,597.82        |  |
| 13,347.00                            | 92.00      | 359.30               | -5,694.86       | 9,034.86      | 4,449.51      | -16.95        | 4,449.41         | 1.59                | 424,147.51         | 685,597.90        |  |
| 13,442.00                            | 91.50      | 0.30                 | -5,691.96       | 9,031.96      | 4,544.47      | -17.28        | 4,544.37         | 1.18                | 424,242.47         | 685,597.57        |  |
| 13,538.00                            | 91.10      | 1.30                 | -5,689.78       | 9,029.78      | 4,640.43      | -15.94        | 4,640.33         | 1.12                | 424,338.43         | 685,598.91        |  |
| 13,633.00                            | 90.50      | 0.50                 | -5,688.46       | 9,028.46      | 4,735.41      | -14.45        | 4,735.32         | 1.05                | 424,433.41         | 685,600.40        |  |
| 13,727.00                            | 90.20      | 0.50                 | -5,687.88       | 9,027.88      | 4,829.40      | -13.63        | 4,829.31         | 0.32                | 424,527.40         | 685,601.22        |  |
| 13,823.00                            | 90.30      | 359.50               | -5,687.46       | 9,027.46      | 4,925.40      | -13.63        | 4,925.31         | 1.05                | 424,623.40         | 685,601.22        |  |
| 13,884.00                            | 90.20      | 359.00               | -5,687.20       | 9,027.20      | 4,986.39      | -14.43        | 4,986.30         | 0.84                | 424,684.39         | 685,600.43        |  |
| Last Phoenix MWD Surveys @ 13884' MD |            |                      |                 |               |               |               |                  |                     |                    |                   |  |
| 13,934.00                            | 90.20      | 359.00               | -5,687.02       | 9,027.02      | 5,036.39      | -15.30        | 5,036.29         | 0.00                | 424,734.39         | 685,599.55        |  |
| Projection to TD @ 13934' MD         |            |                      |                 |               |               |               |                  |                     |                    |                   |  |

| Survey Annotations          |                             |                   |                 |                                      |  |
|-----------------------------|-----------------------------|-------------------|-----------------|--------------------------------------|--|
| Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Local Coordinates |                 | Comment                              |  |
|                             |                             | +N/-S<br>(usft)   | +E/-W<br>(usft) |                                      |  |
| 203.00                      | 203.00                      | -0.32             | -0.63           | First Phoenix MWD Surveys @ 203' MD  |  |
| 13,884.00                   | 9,027.20                    | 4,986.39          | -14.43          | Last Phoenix MWD Surveys @ 13884' MD |  |
| 13,934.00                   | 9,027.02                    | 5,036.39          | -15.30          | Projection to TD @ 13934' MD         |  |



Chesapeake Energy, Survey Report

CHESAPEAKE

|           |                                    |                              |                                 |
|-----------|------------------------------------|------------------------------|---------------------------------|
| Company:  | Chesapeake Operating Inc.          | Local Co-ordinate Reference: | Well Job # 1210896              |
| Project:  | Eddy County, New Mexico (NAD 1983) | TVD Reference:               | WELL @ 3340.00usft (Latshaw,14) |
| Site:     | PLU: Big Sinks 3-25-30 USA.1H      | MD Reference:                | WELL @ 3340.00usft (Latshaw,14) |
| Well:     | Job # 1210896                      | North Reference:             | Grid:                           |
| Wellbore: | Rig: Latshaw 14                    | Survey Calculation Method:   | Minimum Curvature               |
| Design:   | Rig: Latshaw 14                    | Database:                    | Compass5000                     |

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_



PLU Big Sinks 3-25-30 USA 1H Final Surveys.txt

Chesapeake Operating Inc.  
Job # 1210896 - Phoenix MWD Surveys

Eddy County, New Mexico (NAD 1983)  
PLU Big Sinks 3-25-30 USA 1H  
Your Ref:

| Measured<br>UTM Coordinates |                           |                           | Sub-Sea<br>Vertical      | Vertical<br>Dogleg                 | Local Coordinates |                  |
|-----------------------------|---------------------------|---------------------------|--------------------------|------------------------------------|-------------------|------------------|
| Depth<br>Northings<br>(ft)  | Incl.<br>Eastings<br>(ft) | Azim.<br>Eastings<br>(ft) | Depth<br>Section<br>(ft) | Depth<br>Rate<br>(ft)<br>(°/100ft) | Northings<br>(ft) | Eastings<br>(ft) |
| 0.00                        | 0.000                     | 0.000                     | -3340.00                 | 0.00                               | 0.00 N            | 0.00 E           |
| 419698.000 N                | 685614.857 E              |                           | 0.00                     | 0.00                               |                   |                  |
| 203.00                      | 0.400                     | 242.700                   | -3137.00                 | 203.00                             | 0.32 S            | 0.63 W           |
| 419697.675 N                | 685614.227 E              |                           | -0.33                    | 0.20                               |                   |                  |
| 390.00                      | 0.400                     | 224.700                   | -2950.01                 | 389.99                             | 1.09 S            | 1.67 W           |
| 419696.912 N                | 685613.188 E              |                           | -1.09                    | 0.07                               |                   |                  |
| 544.00                      | 0.400                     | 284.100                   | -2796.01                 | 543.99                             | 1.34 S            | 2.57 W           |
| 419696.661 N                | 685612.289 E              |                           | -1.35                    | 0.26                               |                   |                  |
| 734.00                      | 0.800                     | 3.700                     | -2606.02                 | 733.98                             | 0.15 N            | 3.13 W           |
| 419698.146 N                | 685611.731 E              |                           | 0.13                     | 0.44                               |                   |                  |
| 925.00                      | 1.200                     | 15.000                    | -2415.05                 | 924.95                             | 3.41 N            | 2.52 W           |
| 419701.408 N                | 685612.335 E              |                           | 3.40                     | 0.23                               |                   |                  |
| 1015.00                     | 1.300                     | 357.400                   | -2325.07                 | 1014.93                            | 5.34 N            | 2.32 W           |
| 419703.338 N                | 685612.532 E              |                           | 5.33                     | 0.44                               |                   |                  |
| 1241.00                     | 1.500                     | 326.000                   | -2099.13                 | 1240.87                            | 10.35 N           | 4.10 W           |
| 419708.352 N                | 685610.762 E              |                           | 10.34                    | 0.35                               |                   |                  |
| 1431.00                     | 1.100                     | 318.600                   | -1909.18                 | 1430.82                            | 13.78 N           | 6.69 W           |
| 419711.781 N                | 685608.165 E              |                           | 13.76                    | 0.23                               |                   |                  |
| 1621.00                     | 1.200                     | 305.700                   | -1719.22                 | 1620.78                            | 16.31 N           | 9.51 W           |
| 419714.310 N                | 685605.343 E              |                           | 16.27                    | 0.15                               |                   |                  |
| 1812.00                     | 1.400                     | 311.800                   | -1528.27                 | 1811.73                            | 19.03 N           | 12.88 W          |
| 419717.033 N                | 685601.980 E              |                           | 18.98                    | 0.13                               |                   |                  |
| 2002.00                     | 1.200                     | 315.700                   | -1338.32                 | 2001.68                            | 22.00 N           | 16.00 W          |
| 419720.004 N                | 685598.860 E              |                           | 21.94                    | 0.12                               |                   |                  |
| 2192.00                     | 1.200                     | 297.100                   | -1148.36                 | 2191.64                            | 24.33 N           | 19.16 W          |
| 419722.334 N                | 685595.699 E              |                           | 24.26                    | 0.20                               |                   |                  |
| 2382.00                     | 1.500                     | 266.700                   | -958.41                  | 2381.59                            | 25.10 N           | 23.41 W          |
| 419723.097 N                | 685591.446 E              |                           | 25.01                    | 0.40                               |                   |                  |
| 2573.00                     | 1.700                     | 255.300                   | -767.48                  | 2572.52                            | 24.23 N           | 28.65 W          |
| 419722.234 N                | 685586.209 E              |                           | 24.12                    | 0.20                               |                   |                  |
| 2762.00                     | 1.200                     | 250.800                   | -578.54                  | 2761.46                            | 22.87 N           | 33.23 W          |
| 419720.872 N                | 685581.629 E              |                           | 22.74                    | 0.27                               |                   |                  |
| 2951.00                     | 1.200                     | 259.800                   | -389.59                  | 2950.41                            | 21.87 N           | 37.05 W          |
| 419719.871 N                | 685577.812 E              |                           | 21.73                    | 0.10                               |                   |                  |
| 3139.00                     | 1.000                     | 255.700                   | -201.62                  | 3138.38                            | 21.12 N           | 40.57 W          |
| 419719.117 N                | 685574.285 E              |                           | 20.96                    | 0.11                               |                   |                  |
| 3328.00                     | 0.800                     | 174.300                   | -12.64                   | 3327.36                            | 19.40 N           | 42.04 W          |
| 419717.397 N                | 685572.818 E              |                           | 19.24                    | 0.63                               |                   |                  |
| 3517.00                     | 1.200                     | 155.900                   | 176.33                   | 3516.33                            | 16.28 N           | 41.10 W          |
| 419714.277 N                | 685573.757 E              |                           | 16.12                    | 0.27                               |                   |                  |
| 3706.00                     | 1.800                     | 154.000                   | 365.27                   | 3705.27                            | 11.80 N           | 38.99 W          |
| 419709.803 N                | 685575.866 E              |                           | 11.65                    | 0.32                               |                   |                  |
| 3919.00                     | 1.200                     | 158.300                   | 578.19                   | 3918.19                            | 6.72 N            | 36.70 W          |
| 419704.724 N                | 685578.157 E              |                           | 6.58                     | 0.29                               |                   |                  |
| 4109.00                     | 1.200                     | 151.800                   | 768.15                   | 4108.15                            | 3.12 N            | 35.02 W          |
| 419701.122 N                | 685579.833 E              |                           | 2.99                     | 0.07                               |                   |                  |
| 4299.00                     | 1.100                     | 149.700                   | 958.11                   | 4298.11                            | 0.21 S            | 33.16 W          |

PLU Big Sinks 3-25-30 USA 1H Final Surveys.txt

|              |                |         |         |         |         |
|--------------|----------------|---------|---------|---------|---------|
| 419697.794 N | 685581.693 E   | -0.33   | 0.06    |         |         |
| 4489.00      | 1.000 148.500  | 1148.08 | 4488.08 | 3.19 S  | 31.38 W |
| 419694.805 N | 685583.480 E   | -3.32   | 0.05    |         |         |
| 4680.00      | 1.100 139.900  | 1339.05 | 4679.05 | 6.02 S  | 29.33 W |
| 419691.982 N | 685585.532 E   | -6.13   | 0.10    |         |         |
| 4870.00      | 0.700 152.600  | 1529.03 | 4869.03 | 8.44 S  | 27.62 W |
| 419689.556 N | 685587.240 E   | -8.55   | 0.23    |         |         |
| 5060.00      | 0.500 148.400  | 1719.02 | 5059.02 | 10.18 S | 26.65 W |
| 419687.820 N | 685588.209 E   | -10.28  | 0.11    |         |         |
| 5250.00      | 0.400 151.200  | 1909.01 | 5249.01 | 11.47 S | 25.89 W |
| 419686.533 N | 685588.963 E   | -11.57  | 0.05    |         |         |
| 5441.00      | 0.500 156.800  | 2100.01 | 5440.01 | 12.82 S | 25.24 W |
| 419685.182 N | 685589.612 E   | -12.91  | 0.06    |         |         |
| 5631.00      | 0.600 182.100  | 2290.00 | 5630.00 | 14.57 S | 24.95 W |
| 419683.426 N | 685589.902 E   | -14.67  | 0.14    |         |         |
| 5821.00      | 0.500 168.900  | 2479.99 | 5819.99 | 16.38 S | 24.83 W |
| 419681.619 N | 685590.026 E   | -16.48  | 0.08    |         |         |
| 6011.00      | 0.700 160.600  | 2669.98 | 6009.98 | 18.29 S | 24.29 W |
| 419679.710 N | 685590.571 E   | -18.38  | 0.11    |         |         |
| 6201.00      | 1.000 174.500  | 2859.96 | 6199.96 | 21.03 S | 23.74 W |
| 419676.965 N | 685591.115 E   | -21.13  | 0.19    |         |         |
| 6392.00      | 0.900 189.300  | 3050.93 | 6390.93 | 24.17 S | 23.82 W |
| 419673.826 N | 685591.032 E   | -24.27  | 0.14    |         |         |
| 6582.00      | 1.000 202.100  | 3240.90 | 6580.90 | 27.18 S | 24.69 W |
| 419670.817 N | 685590.168 E   | -27.28  | 0.12    |         |         |
| 6772.00      | 1.300 217.400  | 3430.87 | 6770.87 | 30.43 S | 26.62 W |
| 419667.569 N | 685588.235 E   | -30.53  | 0.22    |         |         |
| 6962.00      | 1.300 206.600  | 3620.82 | 6960.82 | 34.07 S | 28.90 W |
| 419663.929 N | 685585.961 E   | -34.18  | 0.13    |         |         |
| 7152.00      | 1.400 207.100  | 3810.77 | 7150.77 | 38.06 S | 30.92 W |
| 419659.936 N | 685583.938 E   | -38.18  | 0.05    |         |         |
| 7342.00      | 1.400 201.500  | 4000.71 | 7340.71 | 42.29 S | 32.83 W |
| 419655.710 N | 685582.030 E   | -42.42  | 0.07    |         |         |
| 7532.00      | 1.300 208.400  | 4190.66 | 7530.66 | 46.35 S | 34.70 W |
| 419651.655 N | 685580.154 E   | -46.48  | 0.10    |         |         |
| 7723.00      | 1.700 211.700  | 4381.59 | 7721.59 | 50.66 S | 37.22 W |
| 419647.338 N | 685577.635 E   | -50.80  | 0.21    |         |         |
| 7912.00      | 1.200 221.700  | 4570.53 | 7910.53 | 54.52 S | 40.01 W |
| 419643.476 N | 685574.845 E   | -54.68  | 0.30    |         |         |
| 8103.00      | 1.900 258.700  | 4761.46 | 8101.46 | 56.64 S | 44.45 W |
| 419641.362 N | 685570.410 E   | -56.81  | 0.62    |         |         |
| 8293.00      | 0.600 269.800  | 4951.41 | 8291.41 | 57.26 S | 48.53 W |
| 419640.741 N | 685566.326 E   | -57.44  | 0.69    |         |         |
| 8483.00      | 0.600 255.900  | 5141.40 | 8481.40 | 57.50 S | 50.49 W |
| 419640.495 N | 685564.367 E   | -57.70  | 0.08    |         |         |
| 8561.00      | 3.800 350.300  | 5219.35 | 8559.35 | 55.06 S | 51.32 W |
| 419642.944 N | 685563.535 E   | -55.25  | 4.99    |         |         |
| 8593.00      | 9.100 352.200  | 5251.13 | 8591.13 | 51.50 S | 51.84 W |
| 419646.499 N | 685563.012 E   | -51.70  | 16.57   |         |         |
| 8625.00      | 13.500 351.100 | 5282.50 | 8622.50 | 45.30 S | 52.77 W |
| 419652.700 N | 685562.090 E   | -45.50  | 13.77   |         |         |
| 8656.00      | 17.800 355.200 | 5312.35 | 8652.35 | 37.00 S | 53.72 W |
| 419661.000 N | 685561.134 E   | -37.21  | 14.31   |         |         |
| 8688.00      | 21.700 358.400 | 5342.46 | 8682.46 | 26.21 S | 54.30 W |
| 419671.792 N | 685560.559 E   | -26.42  | 12.64   |         |         |
| 8720.00      | 22.700 1.200   | 5372.09 | 8712.09 | 14.12 S | 54.33 W |
| 419683.880 N | 685560.523 E   | -14.33  | 4.55    |         |         |
| 8751.00      | 24.100 359.700 | 5400.54 | 8740.54 | 1.81 S  | 54.24 W |
| 419696.190 N | 685560.615 E   | -2.02   | 4.91    |         |         |
| 8783.00      | 25.400 358.700 | 5429.60 | 8769.60 | 11.58 N | 54.43 W |
| 419709.585 N | 685560.425 E   | 11.38   | 4.27    |         |         |
| 8815.00      | 26.400 1.000   | 5458.39 | 8798.39 | 25.56 N | 54.46 W |
| 419723.560 N | 685560.394 E   | 25.35   | 4.43    |         |         |

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|            |        |              |         |         |           |         |
|------------|--------|--------------|---------|---------|-----------|---------|
| 8847.00    | 29.000 | 2.300        | 5486.72 | 8826.72 | 40.43 N   | 54.03 W |
| 419738.426 | N      | 685560.829 E | 40.22   | 8.34    |           |         |
| 8878.00    | 33.600 | 1.100        | 5513.20 | 8853.20 | 56.52 N   | 53.56 W |
| 419754.520 | N      | 685561.296 E | 56.31   | 14.97   |           |         |
| 8910.00    | 37.500 | 359.000      | 5539.23 | 8879.23 | 75.12 N   | 53.56 W |
| 419773.119 | N      | 685561.296 E | 74.91   | 12.77   |           |         |
| 8942.00    | 41.700 | 358.700      | 5563.88 | 8903.88 | 95.51 N   | 53.97 W |
| 419793.508 | N      | 685560.884 E | 95.30   | 13.14   |           |         |
| 8973.00    | 45.400 | 359.000      | 5586.34 | 8926.34 | 116.86 N  | 54.40 W |
| 419814.858 | N      | 685560.457 E | 116.65  | 11.95   |           |         |
| 9005.00    | 49.100 | 0.300        | 5608.06 | 8948.06 | 140.35 N  | 54.54 W |
| 419838.351 | N      | 685560.322 E | 140.14  | 11.94   |           |         |
| 9037.00    | 52.300 | 1.600        | 5628.33 | 8968.33 | 165.11 N  | 54.12 W |
| 419863.106 | N      | 685560.739 E | 164.90  | 10.48   |           |         |
| 9068.00    | 56.200 | 1.400        | 5646.44 | 8986.44 | 190.25 N  | 53.46 W |
| 419888.252 | N      | 685561.396 E | 190.04  | 12.59   |           |         |
| 9100.00    | 60.000 | 1.700        | 5663.34 | 9003.34 | 217.40 N  | 52.72 W |
| 419915.404 | N      | 685562.132 E | 217.20  | 11.90   |           |         |
| 9132.00    | 63.300 | 1.100        | 5678.54 | 9018.54 | 245.55 N  | 52.04 W |
| 419943.553 | N      | 685562.818 E | 245.35  | 10.44   |           |         |
| 9163.00    | 67.400 | 0.700        | 5691.46 | 9031.46 | 273.72 N  | 51.60 W |
| 419971.719 | N      | 685563.259 E | 273.52  | 13.28   |           |         |
| 9195.00    | 71.100 | 1.100        | 5702.80 | 9042.80 | 303.63 N  | 51.13 W |
| 420001.634 | N      | 685563.730 E | 303.44  | 11.62   |           |         |
| 9227.00    | 75.000 | 1.200        | 5712.13 | 9052.13 | 334.23 N  | 50.51 W |
| 420032.232 | N      | 685564.345 E | 334.04  | 12.19   |           |         |
| 9259.00    | 78.400 | 0.500        | 5719.49 | 9059.49 | 365.37 N  | 50.05 W |
| 420063.365 | N      | 685564.805 E | 365.17  | 10.84   |           |         |
| 9290.00    | 81.600 | 0.000        | 5724.87 | 9064.87 | 395.89 N  | 49.92 W |
| 420093.890 | N      | 685564.938 E | 395.70  | 10.44   |           |         |
| 9322.00    | 84.500 | 359.700      | 5728.74 | 9068.74 | 427.65 N  | 50.00 W |
| 420125.651 | N      | 685564.854 E | 427.46  | 9.11    |           |         |
| 9354.00    | 86.900 | 359.700      | 5731.14 | 9071.14 | 459.56 N  | 50.17 W |
| 420157.559 | N      | 685564.687 E | 459.36  | 7.50    |           |         |
| 9385.00    | 90.000 | 358.700      | 5731.98 | 9071.98 | 490.54 N  | 50.60 W |
| 420188.540 | N      | 685564.254 E | 490.34  | 10.51   |           |         |
| 9417.00    | 90.600 | 358.600      | 5731.81 | 9071.81 | 522.53 N  | 51.36 W |
| 420220.531 | N      | 685563.500 E | 522.33  | 1.90    |           |         |
| 9449.00    | 91.900 | 358.800      | 5731.11 | 9071.11 | 554.51 N  | 52.08 W |
| 420252.514 | N      | 685562.775 E | 554.31  | 4.11    |           |         |
| 9544.00    | 92.800 | 358.700      | 5727.22 | 9067.22 | 649.41 N  | 54.15 W |
| 420347.411 | N      | 685560.704 E | 649.20  | 0.95    |           |         |
| 9639.00    | 92.300 | 358.300      | 5722.99 | 9062.99 | 744.28 N  | 56.64 W |
| 420442.284 | N      | 685558.220 E | 744.06  | 0.67    |           |         |
| 9734.00    | 92.400 | 359.000      | 5719.10 | 9059.10 | 839.18 N  | 58.87 W |
| 420537.177 | N      | 685555.983 E | 838.94  | 0.74    |           |         |
| 9829.00    | 94.200 | 0.500        | 5713.63 | 9053.63 | 934.01 N  | 59.29 W |
| 420632.012 | N      | 685555.568 E | 933.78  | 2.46    |           |         |
| 9924.00    | 94.500 | 0.000        | 5706.42 | 9046.42 | 1028.74 N | 58.88 W |
| 420726.737 | N      | 685555.982 E | 1028.50 | 0.61    |           |         |
| 10019.00   | 93.100 | 0.700        | 5700.13 | 9040.13 | 1123.52 N | 58.30 W |
| 420821.523 | N      | 685556.561 E | 1123.29 | 1.65    |           |         |
| 10115.00   | 92.100 | 2.000        | 5695.77 | 9035.77 | 1219.39 N | 56.04 W |
| 420917.394 | N      | 685558.821 E | 1219.17 | 1.71    |           |         |
| 10210.00   | 91.300 | 1.000        | 5692.95 | 9032.95 | 1314.32 N | 53.55 W |
| 421012.318 | N      | 685561.307 E | 1314.10 | 1.35    |           |         |
| 10305.00   | 90.900 | 0.500        | 5691.13 | 9031.13 | 1409.29 N | 52.31 W |
| 421107.292 | N      | 685562.550 E | 1409.08 | 0.67    |           |         |
| 10400.00   | 91.600 | 1.500        | 5689.06 | 9029.06 | 1504.25 N | 50.65 W |
| 421202.253 | N      | 685564.207 E | 1504.05 | 1.28    |           |         |
| 10495.00   | 90.200 | 2.900        | 5687.56 | 9027.56 | 1599.17 N | 47.00 W |
| 421297.167 | N      | 685567.854 E | 1598.97 | 2.08    |           |         |
| 10591.00   | 89.100 | 3.900        | 5688.15 | 9028.15 | 1694.99 N | 41.31 W |

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|            |        |            |   |         |         |         |           |
|------------|--------|------------|---|---------|---------|---------|-----------|
| 421392.993 | N      | 685573.547 | E | 1694.82 | 1.55    |         |           |
| 10686.00   | 87.900 | 3.900      |   | 5690.64 | 9030.64 | 1789.74 | N 34.85 W |
| 421487.739 | N      | 685580.006 | E | 1789.59 | 1.26    |         |           |
| 10781.00   | 88.200 | 3.100      |   | 5693.87 | 9033.87 | 1884.51 | N 29.05 W |
| 421582.506 | N      | 685585.802 | E | 1884.38 | 0.90    |         |           |
| 10876.00   | 87.900 | 2.700      |   | 5697.10 | 9037.10 | 1979.33 | N 24.25 W |
| 421677.329 | N      | 685590.606 | E | 1979.22 | 0.53    |         |           |
| 10971.00   | 89.000 | 0.700      |   | 5699.67 | 9039.67 | 2074.25 | N 21.43 W |
| 421772.246 | N      | 685593.422 | E | 2074.15 | 2.40    |         |           |
| 11066.00   | 87.800 | 0.500      |   | 5702.32 | 9042.32 | 2169.20 | N 20.44 W |
| 421867.202 | N      | 685594.417 | E | 2169.11 | 1.28    |         |           |
| 11161.00   | 89.400 | 0.500      |   | 5704.65 | 9044.65 | 2264.17 | N 19.61 W |
| 421962.167 | N      | 685595.245 | E | 2264.08 | 1.68    |         |           |
| 11256.00   | 88.000 | 0.100      |   | 5706.80 | 9046.80 | 2359.14 | N 19.11 W |
| 422057.139 | N      | 685595.743 | E | 2359.05 | 1.53    |         |           |
| 11351.00   | 89.500 | 359.600    |   | 5708.87 | 9048.87 | 2454.11 | N 19.36 W |
| 422152.113 | N      | 685595.494 | E | 2454.02 | 1.66    |         |           |
| 11447.00   | 91.300 | 359.900    |   | 5708.20 | 9048.20 | 2550.11 | N 19.78 W |
| 422248.105 | N      | 685595.075 | E | 2550.01 | 1.90    |         |           |
| 11542.00   | 91.600 | 359.200    |   | 5705.80 | 9045.80 | 2645.07 | N 20.53 W |
| 422343.071 | N      | 685594.329 | E | 2644.97 | 0.80    |         |           |
| 11637.00   | 90.300 | 358.700    |   | 5704.22 | 9044.22 | 2740.04 | N 22.27 W |
| 422438.040 | N      | 685592.589 | E | 2739.93 | 1.47    |         |           |
| 11732.00   | 91.400 | 359.100    |   | 5702.81 | 9042.81 | 2835.01 | N 24.09 W |
| 422533.010 | N      | 685590.765 | E | 2834.90 | 1.23    |         |           |
| 11826.00   | 91.100 | 358.700    |   | 5700.76 | 9040.76 | 2928.97 | N 25.90 W |
| 422626.970 | N      | 685588.961 | E | 2928.85 | 0.53    |         |           |
| 11922.00   | 90.800 | 0.400      |   | 5699.17 | 9039.17 | 3024.95 | N 26.65 W |
| 422722.951 | N      | 685588.207 | E | 3024.83 | 1.80    |         |           |
| 12017.00   | 89.600 | 0.700      |   | 5698.84 | 9038.84 | 3119.94 | N 25.74 W |
| 422817.944 | N      | 685589.119 | E | 3119.82 | 1.30    |         |           |
| 12112.00   | 88.400 | 0.500      |   | 5700.50 | 9040.50 | 3214.92 | N 24.74 W |
| 422912.922 | N      | 685590.114 | E | 3214.80 | 1.28    |         |           |
| 12207.00   | 90.200 | 1.200      |   | 5701.66 | 9041.66 | 3309.90 | N 23.33 W |
| 423007.900 | N      | 685591.523 | E | 3309.79 | 2.03    |         |           |
| 12302.00   | 88.700 | 0.400      |   | 5702.57 | 9042.57 | 3404.88 | N 22.01 W |
| 423102.883 | N      | 685592.849 | E | 3404.77 | 1.79    |         |           |
| 12397.00   | 89.400 | 1.000      |   | 5704.15 | 9044.15 | 3499.86 | N 20.85 W |
| 423197.862 | N      | 685594.010 | E | 3499.76 | 0.97    |         |           |
| 12492.00   | 90.200 | 1.200      |   | 5704.48 | 9044.48 | 3594.84 | N 19.02 W |
| 423292.843 | N      | 685595.834 | E | 3594.74 | 0.87    |         |           |
| 12587.00   | 89.500 | 0.700      |   | 5704.73 | 9044.73 | 3689.83 | N 17.45 W |
| 423387.829 | N      | 685597.409 | E | 3689.73 | 0.91    |         |           |
| 12682.00   | 89.300 | 359.900    |   | 5705.72 | 9045.72 | 3784.82 | N 16.95 W |
| 423482.822 | N      | 685597.906 | E | 3784.73 | 0.87    |         |           |
| 12777.00   | 88.900 | 359.000    |   | 5707.21 | 9047.21 | 3879.80 | N 17.86 W |
| 423577.804 | N      | 685596.994 | E | 3879.71 | 1.04    |         |           |
| 12872.00   | 89.800 | 358.600    |   | 5708.29 | 9048.29 | 3974.78 | N 19.85 W |
| 423672.776 | N      | 685595.005 | E | 3974.67 | 1.04    |         |           |
| 12967.00   | 91.300 | 359.800    |   | 5707.38 | 9047.38 | 4069.76 | N 21.18 W |
| 423767.758 | N      | 685593.679 | E | 4069.65 | 2.02    |         |           |
| 13062.00   | 92.100 | 1.400      |   | 5704.56 | 9044.56 | 4164.71 | N 20.18 W |
| 423862.707 | N      | 685594.673 | E | 4164.60 | 1.88    |         |           |
| 13157.00   | 92.000 | 0.800      |   | 5701.16 | 9041.16 | 4259.63 | N 18.36 W |
| 423957.628 | N      | 685596.495 | E | 4259.53 | 0.64    |         |           |
| 13252.00   | 91.800 | 0.800      |   | 5698.01 | 9038.01 | 4354.57 | N 17.04 W |
| 424052.567 | N      | 685597.821 | E | 4354.47 | 0.21    |         |           |
| 13347.00   | 92.000 | 359.300    |   | 5694.86 | 9034.86 | 4449.51 | N 16.95 W |
| 424147.512 | N      | 685597.904 | E | 4449.41 | 1.59    |         |           |
| 13442.00   | 91.500 | 0.300      |   | 5691.96 | 9031.96 | 4544.47 | N 17.28 W |
| 424242.466 | N      | 685597.572 | E | 4544.37 | 1.18    |         |           |
| 13538.00   | 91.100 | 1.300      |   | 5689.78 | 9029.78 | 4640.43 | N 15.94 W |
| 424338.430 | N      | 685598.912 | E | 4640.33 | 1.12    |         |           |

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|            |        |            |         |         |           |         |
|------------|--------|------------|---------|---------|-----------|---------|
| 13633.00   | 90.500 | 0.500      | 5688.46 | 9028.46 | 4735.41 N | 14.45 W |
| 424433.408 | N      | 685600.404 | E       | 4735.32 | 1.05      |         |
| 13727.00   | 90.200 | 0.500      | 5687.88 | 9027.88 | 4829.40 N | 13.63 W |
| 424527.402 | N      | 685601.225 | E       | 4829.31 | 0.32      |         |
| 13823.00   | 90.300 | 359.500    | 5687.46 | 9027.46 | 4925.40 N | 13.63 W |
| 424623.400 | N      | 685601.225 | E       | 4925.31 | 1.05      |         |
| 13884.00   | 90.200 | 359.000    | 5687.20 | 9027.20 | 4986.39 N | 14.43 W |
| 424684.394 | N      | 685600.426 | E       | 4986.30 | 0.84      |         |
| 13934.00   | 90.200 | 359.000    | 5687.02 | 9027.02 | 5036.39 N | 15.30 W |
| 424734.386 | N      | 685599.554 | E       | 5036.29 | 0.00      |         |

All data are in feet unless otherwise stated. Directions and coordinates are relative to Grid North.

Vertical depths are relative to WELL. Northings and Eastings are relative to well.

The Dogleg Severity is in Degrees per 100 feet.

Vertical Section is from Slot and calculated along an Azimuth of 0.220° (Grid).

Coordinate System is North American Datum 1983 US State Plane 1983, New Mexico Eastern Zone.

Grid Convergence at Surface is 0.248°.

Based upon Minimum Curvature type calculations, at a Measured Depth of 13934.00ft., the Bottom Hole Displacement is 5036.41ft., in the Direction of 0.220° (Grid).

| MD   | Inc | Az    | TVDSS    | TVD     | N/S     | E/W     |
|------|-----|-------|----------|---------|---------|---------|
| 0    | 0   | 0     | -3340    | 0       | 0 N     | 0 E     |
| 203  | 0.4 | 242.7 | -3137    | 203     | 0.32 S  | 0.63 W  |
| 390  | 0.4 | 224.7 | -2950.01 | 389.99  | 1.09 S  | 1.67 W  |
| 544  | 0.4 | 284.1 | -2796.01 | 543.99  | 1.34 S  | 2.57 W  |
| 734  | 0.8 | 3.7   | -2606.02 | 733.98  | 0.15 N  | 3.13 W  |
| 925  | 1.2 | 15    | -2415.05 | 924.95  | 3.41 N  | 2.52 W  |
| 1015 | 1.3 | 357.4 | -2325.07 | 1014.93 | 5.34 N  | 2.32 W  |
| 1241 | 1.5 | 326   | -2099.13 | 1240.87 | 10.35 N | 4.1 W   |
| 1431 | 1.1 | 318.6 | -1909.18 | 1430.82 | 13.78 N | 6.69 W  |
| 1621 | 1.2 | 305.7 | -1719.22 | 1620.78 | 16.31 N | 9.51 W  |
| 1812 | 1.4 | 311.8 | -1528.27 | 1811.73 | 19.03 N | 12.88 W |
| 2002 | 1.2 | 315.7 | -1338.32 | 2001.68 | 22 N    | 16 W    |
| 2192 | 1.2 | 297.1 | -1148.36 | 2191.64 | 24.33 N | 19.16 W |
| 2382 | 1.5 | 266.7 | -958.41  | 2381.59 | 25.1 N  | 23.41 W |
| 2573 | 1.7 | 255.3 | -767.48  | 2572.52 | 24.23 N | 28.65 W |
| 2762 | 1.2 | 250.8 | -578.54  | 2761.46 | 22.87 N | 33.23 W |
| 2951 | 1.2 | 259.8 | -389.59  | 2950.41 | 21.87 N | 37.05 W |
| 3139 | 1   | 255.7 | -201.62  | 3138.38 | 21.12 N | 40.57 W |
| 3328 | 0.8 | 174.3 | -12.64   | 3327.36 | 19.4 N  | 42.04 W |
| 3517 | 1.2 | 155.9 | 176.33   | 3516.33 | 16.28 N | 41.1 W  |
| 3706 | 1.8 | 154   | 365.27   | 3705.27 | 11.8 N  | 38.99 W |
| 3919 | 1.2 | 158.3 | 578.19   | 3918.19 | 6.72 N  | 36.7 W  |
| 4109 | 1.2 | 151.8 | 768.15   | 4108.15 | 3.12 N  | 35.02 W |
| 4299 | 1.1 | 149.7 | 958.11   | 4298.11 | 0.21 S  | 33.16 W |
| 4489 | 1   | 148.5 | 1148.08  | 4488.08 | 3.19 S  | 31.38 W |
| 4680 | 1.1 | 139.9 | 1339.05  | 4679.05 | 6.02 S  | 29.33 W |
| 4870 | 0.7 | 152.6 | 1529.03  | 4869.03 | 8.44 S  | 27.62 W |
| 5060 | 0.5 | 148.4 | 1719.02  | 5059.02 | 10.18 S | 26.65 W |
| 5250 | 0.4 | 151.2 | 1909.01  | 5249.01 | 11.47 S | 25.89 W |
| 5441 | 0.5 | 156.8 | 2100.01  | 5440.01 | 12.82 S | 25.24 W |
| 5631 | 0.6 | 182.1 | 2290     | 5630    | 14.57 S | 24.95 W |
| 5821 | 0.5 | 168.9 | 2479.99  | 5819.99 | 16.38 S | 24.83 W |
| 6011 | 0.7 | 160.6 | 2669.98  | 6009.98 | 18.29 S | 24.29 W |
| 6201 | 1   | 174.5 | 2859.96  | 6199.96 | 21.03 S | 23.74 W |
| 6392 | 0.9 | 189.3 | 3050.93  | 6390.93 | 24.17 S | 23.82 W |
| 6582 | 1   | 202.1 | 3240.9   | 6580.9  | 27.18 S | 24.69 W |
| 6772 | 1.3 | 217.4 | 3430.87  | 6770.87 | 30.43 S | 26.62 W |
| 6962 | 1.3 | 206.6 | 3620.82  | 6960.82 | 34.07 S | 28.9 W  |
| 7152 | 1.4 | 207.1 | 3810.77  | 7150.77 | 38.06 S | 30.92 W |
| 7342 | 1.4 | 201.5 | 4000.71  | 7340.71 | 42.29 S | 32.83 W |
| 7532 | 1.3 | 208.4 | 4190.66  | 7530.66 | 46.35 S | 34.7 W  |
| 7723 | 1.7 | 211.7 | 4381.59  | 7721.59 | 50.66 S | 37.22 W |
| 7912 | 1.2 | 221.7 | 4570.53  | 7910.53 | 54.52 S | 40.01 W |
| 8103 | 1.9 | 258.7 | 4761.46  | 8101.46 | 56.64 S | 44.45 W |
| 8293 | 0.6 | 269.8 | 4951.41  | 8291.41 | 57.26 S | 48.53 W |
| 8483 | 0.6 | 255.9 | 5141.4   | 8481.4  | 57.5 S  | 50.49 W |



|       |      |       |         |         |           |         |
|-------|------|-------|---------|---------|-----------|---------|
| 8561  | 3.8  | 350.3 | 5219.35 | 8559.35 | 55.06 S   | 51.32 W |
| 8593  | 9.1  | 352.2 | 5251.13 | 8591.13 | 51.5 S    | 51.84 W |
| 8625  | 13.5 | 351.1 | 5282.5  | 8622.5  | 45.3 S    | 52.77 W |
| 8656  | 17.8 | 355.2 | 5312.35 | 8652.35 | 37 S      | 53.72 W |
| 8688  | 21.7 | 358.4 | 5342.46 | 8682.46 | 26.21 S   | 54.3 W  |
| 8720  | 22.7 | 1.2   | 5372.09 | 8712.09 | 14.12 S   | 54.33 W |
| 8751  | 24.1 | 359.7 | 5400.54 | 8740.54 | 1.81 S    | 54.24 W |
| 8783  | 25.4 | 358.7 | 5429.6  | 8769.6  | 11.58 N   | 54.43 W |
| 8815  | 26.4 | 1     | 5458.39 | 8798.39 | 25.56 N   | 54.46 W |
| 8847  | 29   | 2.3   | 5486.72 | 8826.72 | 40.43 N   | 54.03 W |
| 8878  | 33.6 | 1.1   | 5513.2  | 8853.2  | 56.52 N   | 53.56 W |
| 8910  | 37.5 | 359   | 5539.23 | 8879.23 | 75.12 N   | 53.56 W |
| 8942  | 41.7 | 358.7 | 5563.88 | 8903.88 | 95.51 N   | 53.97 W |
| 8973  | 45.4 | 359   | 5586.34 | 8926.34 | 116.86 N  | 54.4 W  |
| 9005  | 49.1 | 0.3   | 5608.06 | 8948.06 | 140.35 N  | 54.54 W |
| 9037  | 52.3 | 1.6   | 5628.33 | 8968.33 | 165.11 N  | 54.12 W |
| 9068  | 56.2 | 1.4   | 5646.44 | 8986.44 | 190.25 N  | 53.46 W |
| 9100  | 60   | 1.7   | 5663.34 | 9003.34 | 217.4 N   | 52.72 W |
| 9132  | 63.3 | 1.1   | 5678.54 | 9018.54 | 245.55 N  | 52.04 W |
| 9163  | 67.4 | 0.7   | 5691.46 | 9031.46 | 273.72 N  | 51.6 W  |
| 9195  | 71.1 | 1.1   | 5702.8  | 9042.8  | 303.63 N  | 51.13 W |
| 9227  | 75   | 1.2   | 5712.13 | 9052.13 | 334.23 N  | 50.51 W |
| 9259  | 78.4 | 0.5   | 5719.49 | 9059.49 | 365.37 N  | 50.05 W |
| 9290  | 81.6 | 0     | 5724.87 | 9064.87 | 395.89 N  | 49.92 W |
| 9322  | 84.5 | 359.7 | 5728.74 | 9068.74 | 427.65 N  | 50 W    |
| 9354  | 86.9 | 359.7 | 5731.14 | 9071.14 | 459.56 N  | 50.17 W |
| 9385  | 90   | 358.7 | 5731.98 | 9071.98 | 490.54 N  | 50.6 W  |
| 9417  | 90.6 | 358.6 | 5731.81 | 9071.81 | 522.53 N  | 51.36 W |
| 9449  | 91.9 | 358.8 | 5731.11 | 9071.11 | 554.51 N  | 52.08 W |
| 9544  | 92.8 | 358.7 | 5727.22 | 9067.22 | 649.41 N  | 54.15 W |
| 9639  | 92.3 | 358.3 | 5722.99 | 9062.99 | 744.28 N  | 56.64 W |
| 9734  | 92.4 | 359   | 5719.1  | 9059.1  | 839.18 N  | 58.87 W |
| 9829  | 94.2 | 0.5   | 5713.63 | 9053.63 | 934.01 N  | 59.29 W |
| 9924  | 94.5 | 0     | 5706.42 | 9046.42 | 1028.74 N | 58.88 W |
| 10019 | 93.1 | 0.7   | 5700.13 | 9040.13 | 1123.52 N | 58.3 W  |
| 10115 | 92.1 | 2     | 5695.77 | 9035.77 | 1219.39 N | 56.04 W |
| 10210 | 91.3 | 1     | 5692.95 | 9032.95 | 1314.32 N | 53.55 W |
| 10305 | 90.9 | 0.5   | 5691.13 | 9031.13 | 1409.29 N | 52.31 W |
| 10400 | 91.6 | 1.5   | 5689.06 | 9029.06 | 1504.25 N | 50.65 W |
| 10495 | 90.2 | 2.9   | 5687.56 | 9027.56 | 1599.17 N | 47 W    |
| 10591 | 89.1 | 3.9   | 5688.15 | 9028.15 | 1694.99 N | 41.31 W |
| 10686 | 87.9 | 3.9   | 5690.64 | 9030.64 | 1789.74 N | 34.85 W |
| 10781 | 88.2 | 3.1   | 5693.87 | 9033.87 | 1884.51 N | 29.05 W |
| 10876 | 87.9 | 2.7   | 5697.1  | 9037.1  | 1979.33 N | 24.25 W |
| 10971 | 89   | 0.7   | 5699.67 | 9039.67 | 2074.25 N | 21.43 W |
| 11066 | 87.8 | 0.5   | 5702.32 | 9042.32 | 2169.2 N  | 20.44 W |
| 11161 | 89.4 | 0.5   | 5704.65 | 9044.65 | 2264.17 N | 19.61 W |

|       |      |       |         |         |           |         |
|-------|------|-------|---------|---------|-----------|---------|
| 11256 | 88   | 0.1   | 5706.8  | 9046.8  | 2359.14 N | 19.11 W |
| 11351 | 89.5 | 359.6 | 5708.87 | 9048.87 | 2454.11 N | 19.36 W |
| 11447 | 91.3 | 359.9 | 5708.2  | 9048.2  | 2550.11 N | 19.78 W |
| 11542 | 91.6 | 359.2 | 5705.8  | 9045.8  | 2645.07 N | 20.53 W |
| 11637 | 90.3 | 358.7 | 5704.22 | 9044.22 | 2740.04 N | 22.27 W |
| 11732 | 91.4 | 359.1 | 5702.81 | 9042.81 | 2835.01 N | 24.09 W |
| 11826 | 91.1 | 358.7 | 5700.76 | 9040.76 | 2928.97 N | 25.9 W  |
| 11922 | 90.8 | 0.4   | 5699.17 | 9039.17 | 3024.95 N | 26.65 W |
| 12017 | 89.6 | 0.7   | 5698.84 | 9038.84 | 3119.94 N | 25.74 W |
| 12112 | 88.4 | 0.5   | 5700.5  | 9040.5  | 3214.92 N | 24.74 W |
| 12207 | 90.2 | 1.2   | 5701.66 | 9041.66 | 3309.9 N  | 23.33 W |
| 12302 | 88.7 | 0.4   | 5702.57 | 9042.57 | 3404.88 N | 22.01 W |
| 12397 | 89.4 | 1     | 5704.15 | 9044.15 | 3499.86 N | 20.85 W |
| 12492 | 90.2 | 1.2   | 5704.48 | 9044.48 | 3594.84 N | 19.02 W |
| 12587 | 89.5 | 0.7   | 5704.73 | 9044.73 | 3689.83 N | 17.45 W |
| 12682 | 89.3 | 359.9 | 5705.72 | 9045.72 | 3784.82 N | 16.95 W |
| 12777 | 88.9 | 359   | 5707.21 | 9047.21 | 3879.8 N  | 17.86 W |
| 12872 | 89.8 | 358.6 | 5708.29 | 9048.29 | 3974.78 N | 19.85 W |
| 12967 | 91.3 | 359.8 | 5707.38 | 9047.38 | 4069.76 N | 21.18 W |
| 13062 | 92.1 | 1.4   | 5704.56 | 9044.56 | 4164.71 N | 20.18 W |
| 13157 | 92   | 0.8   | 5701.16 | 9041.16 | 4259.63 N | 18.36 W |
| 13252 | 91.8 | 0.8   | 5698.01 | 9038.01 | 4354.57 N | 17.04 W |
| 13347 | 92   | 359.3 | 5694.86 | 9034.86 | 4449.51 N | 16.95 W |
| 13442 | 91.5 | 0.3   | 5691.96 | 9031.96 | 4544.47 N | 17.28 W |
| 13538 | 91.1 | 1.3   | 5689.78 | 9029.78 | 4640.43 N | 15.94 W |
| 13633 | 90.5 | 0.5   | 5688.46 | 9028.46 | 4735.41 N | 14.45 W |
| 13727 | 90.2 | 0.5   | 5687.88 | 9027.88 | 4829.4 N  | 13.63 W |
| 13823 | 90.3 | 359.5 | 5687.46 | 9027.46 | 4925.4 N  | 13.63 W |
| 13884 | 90.2 | 359   | 5687.2  | 9027.2  | 4986.39 N | 14.43 W |
| 13934 | 90.2 | 359   | 5687.02 | 9027.02 | 5036.39 N | 15.3 W  |

| Northing   | Easting    | V Sec  | D Leg |
|------------|------------|--------|-------|
| 419698 N   | 685614.9 E | 0      | 0     |
| 419697.7 N | 685614.2 E | -0.33  | 0.2   |
| 419696.9 N | 685613.2 E | -1.09  | 0.07  |
| 419696.7 N | 685612.3 E | -1.35  | 0.26  |
| 419698.1 N | 685611.7 E | 0.13   | 0.44  |
| 419701.4 N | 685612.3 E | 3.4    | 0.23  |
| 419703.3 N | 685612.5 E | 5.33   | 0.44  |
| 419708.4 N | 685610.8 E | 10.34  | 0.35  |
| 419711.8 N | 685608.2 E | 13.76  | 0.23  |
| 419714.3 N | 685605.3 E | 16.27  | 0.15  |
| 419717 N   | 685602 E   | 18.98  | 0.13  |
| 419720 N   | 685598.9 E | 21.94  | 0.12  |
| 419722.3 N | 685595.7 E | 24.26  | 0.2   |
| 419723.1 N | 685591.4 E | 25.01  | 0.4   |
| 419722.2 N | 685586.2 E | 24.12  | 0.2   |
| 419720.9 N | 685581.6 E | 22.74  | 0.27  |
| 419719.9 N | 685577.8 E | 21.73  | 0.1   |
| 419719.1 N | 685574.3 E | 20.96  | 0.11  |
| 419717.4 N | 685572.8 E | 19.24  | 0.63  |
| 419714.3 N | 685573.8 E | 16.12  | 0.27  |
| 419709.8 N | 685575.9 E | 11.65  | 0.32  |
| 419704.7 N | 685578.2 E | 6.58   | 0.29  |
| 419701.1 N | 685579.8 E | 2.99   | 0.07  |
| 419697.8 N | 685581.7 E | -0.33  | 0.06  |
| 419694.8 N | 685583.5 E | -3.32  | 0.05  |
| 419692 N   | 685585.5 E | -6.13  | 0.1   |
| 419689.6 N | 685587.2 E | -8.55  | 0.23  |
| 419687.8 N | 685588.2 E | -10.28 | 0.11  |
| 419686.5 N | 685589 E   | -11.57 | 0.05  |
| 419685.2 N | 685589.6 E | -12.91 | 0.06  |
| 419683.4 N | 685589.9 E | -14.67 | 0.14  |
| 419681.6 N | 685590 E   | -16.48 | 0.08  |
| 419679.7 N | 685590.6 E | -18.38 | 0.11  |
| 419677 N   | 685591.1 E | -21.13 | 0.19  |
| 419673.8 N | 685591 E   | -24.27 | 0.14  |
| 419670.8 N | 685590.2 E | -27.28 | 0.12  |
| 419667.6 N | 685588.2 E | -30.53 | 0.22  |
| 419663.9 N | 685586 E   | -34.18 | 0.13  |
| 419659.9 N | 685583.9 E | -38.18 | 0.05  |
| 419655.7 N | 685582 E   | -42.42 | 0.07  |
| 419651.7 N | 685580.2 E | -46.48 | 0.1   |
| 419647.3 N | 685577.6 E | -50.8  | 0.21  |
| 419643.5 N | 685574.8 E | -54.68 | 0.3   |
| 419641.4 N | 685570.4 E | -56.81 | 0.62  |
| 419640.7 N | 685566.3 E | -57.44 | 0.69  |
| 419640.5 N | 685564.4 E | -57.7  | 0.08  |

|            |            |         |       |
|------------|------------|---------|-------|
| 419642.9 N | 685563.5 E | -55.25  | 4.99  |
| 419646.5 N | 685563 E   | -51.7   | 16.57 |
| 419652.7 N | 685562.1 E | -45.5   | 13.77 |
| 419661 N   | 685561.1 E | -37.21  | 14.31 |
| 419671.8 N | 685560.6 E | -26.42  | 12.64 |
| 419683.9 N | 685560.5 E | -14.33  | 4.55  |
| 419696.2 N | 685560.6 E | -2.02   | 4.91  |
| 419709.6 N | 685560.4 E | 11.38   | 4.27  |
| 419723.6 N | 685560.4 E | 25.35   | 4.43  |
| 419738.4 N | 685560.8 E | 40.22   | 8.34  |
| 419754.5 N | 685561.3 E | 56.31   | 14.97 |
| 419773.1 N | 685561.3 E | 74.91   | 12.77 |
| 419793.5 N | 685560.9 E | 95.3    | 13.14 |
| 419814.9 N | 685560.5 E | 116.65  | 11.95 |
| 419838.4 N | 685560.3 E | 140.14  | 11.94 |
| 419863.1 N | 685560.7 E | 164.9   | 10.48 |
| 419888.3 N | 685561.4 E | 190.04  | 12.59 |
| 419915.4 N | 685562.1 E | 217.2   | 11.9  |
| 419943.6 N | 685562.8 E | 245.35  | 10.44 |
| 419971.7 N | 685563.3 E | 273.52  | 13.28 |
| 420001.6 N | 685563.7 E | 303.44  | 11.62 |
| 420032.2 N | 685564.3 E | 334.04  | 12.19 |
| 420063.4 N | 685564.8 E | 365.17  | 10.84 |
| 420093.9 N | 685564.9 E | 395.7   | 10.44 |
| 420125.7 N | 685564.9 E | 427.46  | 9.11  |
| 420157.6 N | 685564.7 E | 459.36  | 7.5   |
| 420188.5 N | 685564.3 E | 490.34  | 10.51 |
| 420220.5 N | 685563.5 E | 522.33  | 1.9   |
| 420252.5 N | 685562.8 E | 554.31  | 4.11  |
| 420347.4 N | 685560.7 E | 649.2   | 0.95  |
| 420442.3 N | 685558.2 E | 744.06  | 0.67  |
| 420537.2 N | 685556 E   | 838.94  | 0.74  |
| 420632 N   | 685555.6 E | 933.78  | 2.46  |
| 420726.7 N | 685556 E   | 1028.5  | 0.61  |
| 420821.5 N | 685556.6 E | 1123.29 | 1.65  |
| 420917.4 N | 685558.8 E | 1219.17 | 1.71  |
| 421012.3 N | 685561.3 E | 1314.1  | 1.35  |
| 421107.3 N | 685562.6 E | 1409.08 | 0.67  |
| 421202.3 N | 685564.2 E | 1504.05 | 1.28  |
| 421297.2 N | 685567.9 E | 1598.97 | 2.08  |
| 421393 N   | 685573.5 E | 1694.82 | 1.55  |
| 421487.7 N | 685580 E   | 1789.59 | 1.26  |
| 421582.5 N | 685585.8 E | 1884.38 | 0.9   |
| 421677.3 N | 685590.6 E | 1979.22 | 0.53  |
| 421772.2 N | 685593.4 E | 2074.15 | 2.4   |
| 421867.2 N | 685594.4 E | 2169.11 | 1.28  |
| 421962.2 N | 685595.2 E | 2264.08 | 1.68  |

|            |            |         |      |
|------------|------------|---------|------|
| 422057.1 N | 685595.7 E | 2359.05 | 1.53 |
| 422152.1 N | 685595.5 E | 2454.02 | 1.66 |
| 422248.1 N | 685595.1 E | 2550.01 | 1.9  |
| 422343.1 N | 685594.3 E | 2644.97 | 0.8  |
| 422438 N   | 685592.6 E | 2739.93 | 1.47 |
| 422533 N   | 685590.8 E | 2834.9  | 1.23 |
| 422627 N   | 685589 E   | 2928.85 | 0.53 |
| 422723 N   | 685588.2 E | 3024.83 | 1.8  |
| 422817.9 N | 685589.1 E | 3119.82 | 1.3  |
| 422912.9 N | 685590.1 E | 3214.8  | 1.28 |
| 423007.9 N | 685591.5 E | 3309.79 | 2.03 |
| 423102.9 N | 685592.8 E | 3404.77 | 1.79 |
| 423197.9 N | 685594 E   | 3499.76 | 0.97 |
| 423292.8 N | 685595.8 E | 3594.74 | 0.87 |
| 423387.8 N | 685597.4 E | 3689.73 | 0.91 |
| 423482.8 N | 685597.9 E | 3784.73 | 0.87 |
| 423577.8 N | 685597 E   | 3879.71 | 1.04 |
| 423672.8 N | 685595 E   | 3974.67 | 1.04 |
| 423767.8 N | 685593.7 E | 4069.65 | 2.02 |
| 423862.7 N | 685594.7 E | 4164.6  | 1.88 |
| 423957.6 N | 685596.5 E | 4259.53 | 0.64 |
| 424052.6 N | 685597.8 E | 4354.47 | 0.21 |
| 424147.5 N | 685597.9 E | 4449.41 | 1.59 |
| 424242.5 N | 685597.6 E | 4544.37 | 1.18 |
| 424338.4 N | 685598.9 E | 4640.33 | 1.12 |
| 424433.4 N | 685600.4 E | 4735.32 | 1.05 |
| 424527.4 N | 685601.2 E | 4829.31 | 0.32 |
| 424623.4 N | 685601.2 E | 4925.31 | 1.05 |
| 424684.4 N | 685600.4 E | 4986.3  | 0.84 |
| 424734.4 N | 685599.6 E | 5036.29 | 0    |



# Chesapeake Operating Inc.

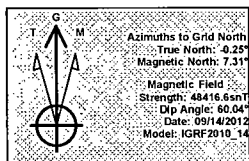
Project: Eddy County, New Mexico (NAD 1983)

Site: PLU Big Sinks 3-25-30 USA 1H

Well: Job # 1210896

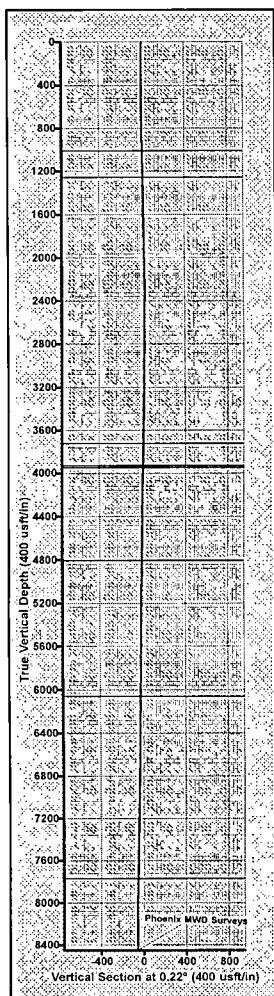
Wellbore: Rig: Latshaw 14

Plan: Plan 2 - 10-5-2012



| WELL DETAILS: Job # 1210896 |           |                       |                   |
|-----------------------------|-----------|-----------------------|-------------------|
| Northings                   | Easting   | Ground Level: 3317.00 | Longitude         |
| 419698.00                   | 685614.86 | 32° 9' 10.6902 N      | 103° 52' 1.6722 W |

| SECTION DETAILS |       |      |         |         |        |       |        |         |                                    |
|-----------------|-------|------|---------|---------|--------|-------|--------|---------|------------------------------------|
| MD              | Inc   | Azi  | TVD     | +N-S    | +E-W   | Deg   | TFace  | Vsect   |                                    |
| 8801.00         | 25.95 | 0.01 | 8785.82 | 19.38   | -54.52 | 0.00  | 0.00   | 19.18   |                                    |
| 9314.21         | 90.00 | 0.87 | 9044.00 | 432.19  | -50.13 | 12.48 | 0.95   | 431.99  |                                    |
| 13919.55        | 90.00 | 0.85 | 9044.00 | 5037.00 | 19.14  | 0.00  | -90.00 | 5037.04 | PLU Big Sinks 3-25-30 USA 1H, PBHL |



| FORMATION TOP DETAILS |         |                   |          |        |  |
|-----------------------|---------|-------------------|----------|--------|--|
| TVDPath               | MDPath  | Formation         | DipAngle | DipDir |  |
| 1011.00               | 1011.07 | Rustler           | 0.00     | 0.22   |  |
| 1255.00               | 1255.14 | Top of Salt       | 0.00     | 0.22   |  |
| 3722.00               | 3722.74 | Base of Anhydrite | 0.00     | 0.22   |  |
| 3923.00               | 3923.81 | Lamar             | 0.00     | 0.22   |  |
| 3946.00               | 3946.81 | Bell Canyon       | 0.00     | 0.22   |  |
| 4806.00               | 4806.97 | Cherry Canyon     | 0.00     | 0.22   |  |
| 6058.00               | 6058.03 | Brushy Canyon     | 0.00     | 0.22   |  |
| 7768.00               | 7768.43 | Bone Spring       | 0.00     | 0.22   |  |
| 8701.00               | 8708.00 | FBS Sand          | 0.00     | 0.22   |  |
| 9044.00               | 9314.27 | Target @ 90° Inc  | 0.00     | 0.22   |  |

| ANNOTATIONS |          |                                    |
|-------------|----------|------------------------------------|
| TVD         | MD       | Annotation                         |
| 8785.82     | 8801.00  | The on point Build @ 12.27° / 100' |
| 9044.00     | 9318.17  | Lp @ 9044                          |
| 9044.00     | 13918.00 | TD @ 13918.39' MD                  |

